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| 09/576,957 | 05/24/2000 | Atsushi Sakai | Q54388 | 5486 |

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EXAMINER

TRINH, MICHAEL MANH

ART UNIT PAPER NUMBER

2822

DATE MAILED: 11/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/576,957

Applicant(s)

SAKAI ET AL.

Examiner

Michael Trinh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6, 8-14 and 29-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 29-36 is/are allowed.
- 6) ☒ Claim(s) 6 and 8-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

*** This office action is in response to Applicant's amendment filed on August 20, 2003.

Claims 6,8-14,29-36 are pending, in which claims 30-36 have been newly added.

*** The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

1. Claims 6,8-11 are rejected under 35 U.S.C. 103 as being anticipated by Murayama et al (5,412,533) taken with Applicant admitted prior art (specification pages 2-4) and Nakamura et al (5,483,415) as evidences, and further of Cichanowski (4,499,520).

Murayama et al teach a method for producing a solid electrolyte capacitor comprising a porous metal body 1 having thereon a dielectric oxide film 8 and a solid electrolyte 10 formed on a desired portion of the dielectric film 8 (Fig 6; col 5, lines 30-55), the metal material having valve action, wherein the method comprises the step of coating a masking resin material solution on the porous metal material body 1 to form a first masking layers 12 and a step of coating a resin masking material solution to form a second masking layer 12 (Figs 11,9-10; col 6, lines 35-67; col 7, lines 9-23,46-57;Fig 19), and linearly around the entire circumference of the metal material body (1,5,11; Figs 1 and 11), wherein the resin masking layers 12 are formed after forming the dielectric oxide layer 8 (col 6, lines 55-66), wherein at least the step of forming the second masking layer causes infiltration of the resin masking material solution into the pores of the dielectric film 8 formed on the porous valve metal body 1 and formation of the resin masking layer on the infiltrated portion, inherently, and wherein the masking layers prevent crawling up of the solid electrolyte during immersion and shorting between anode and cathode. Applicant's admitted prior art evidently teaches that the "method of forming a polyimide film by electro-deposition may successfully form a film even inside the pore parts" (see Applicant admitted prior art at specification pages 3-4 as evidence). Furthermore, Nakamura et al '415 evidently teach (at figures 1-2 ; col 5, lines 22-42) coating a masking material solution of heat resistant resin by immersing the valve-acting tantalum metal into a liquid insulating substance so that the liquid solution infiltrates the porous chip and thus forming a masking layer on the infiltrated portion and thus preventing infiltration of a solid electrolyte formed in a subsequent step.

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Murayama et al teach coating the first and second masking resin layers 12 on portions of the metal body, but lacks mentioning forming the masking layer by press contacting (claim 6).

However, Cichanowski teaches (at col 10, lines 1-10; Fig 1; col 9, line 55 through col 10) coating a polymer 11 onto a substrate by conventional techniques including brushing (press contacting), roller coating (press contacting), dipping, spin coating, and drawing down (press contact).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the resin polymer masking insulating layer of Murayama et al by employing conventional techniques including brushing (press contacting), roller coating (press contacting), and drawing down as taught by Cichanowski. This is because of the desirability and necessity to coat the masking polymer layer on portions of the substrate for mass-production, wherein these conventional techniques are alternative and proven for effectively coating of the polymer layer on the substrate.

Re further claims 8-11: Murayama et al teach using tantalum or niobium for the metal material (re claim 11; col 1, lines 9-15), and resin for the masking layer, wherein the resin masking material is heat resistant resin solution (claim 8; Nakamura '415 at col 5, lines 26-42), but lacks listing other alternative materials as recited in claims 9-11.

Although these alternative materials are well known in the art for substitution, Applicant admitted prior art (present specification pages 2-4; page 31, line 12+, including the Japanese patent applications) teaches some other alternative materials; for example, re claim 11, metal materials also include titanium, aluminum, or tantalum (page 2, lines 1-5); re claim 8-10, masking material solution includes resin, polyimide, polyamic acid (page 3, line 5 through page 4), wherein silicone oil, polyimidesiloxane, etc., are mentioned at page 31, line 12+, wherein due to dehydration and curing, the masking resin polymer is solidified during coating, and preventing infiltration of a solid electrolyte formed in a subsequent step, and wherein the polyamic acid solution forming the polyimide film as low molecular weight masking material solution is heat resistant resin.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Murayama by employing these alternative materials as taught by Applicant admitted prior art and other materials as well known in the art

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for substitution. This is because the substitution of art recognized equivalent materials would have been within the level of one having ordinary skill in the art, wherein the alternative metal materials are valve-acting metal that enable to form solid electrolytic capacitors, and wherein the masking layers of these alternative resin materials prevent crawling up of the solid electrolyte during immersion and shorting between anode and cathode.

2. Claims 12-14 are rejected under 35 U.S.C. 103 as being anticipated by Murayama et al (5,412,533) with Applicant admitted prior art (specification pages 2-4) and Nakamura et al (5,483,415) as evidences, taken with Cichanowski (4,499,520), as applied above to claim 6, and further of and Kudoh et al (5,117,332).

The relied references including Murayama '415 teach a method for producing a solid electrolyte capacitor as applied above to claim 6.

Murayama teaches (at col 5, lines 45-67) using manganese dioxide for the solid electrolyte 10, but lacks listing other solid electrolytes as recited in claims 12-14.

However, Kudoh teaches (at col 5, line 56 through col 6, line 6) using solid electrolytes including pyrrole, thiophene, its derivatives, and sulfonic acid and their salts, instead of using manganese dioxide for the solid electrolyte (at col 1, lines 48-55), wherein 3,4-ethylenedioxythiophene is also mentioned by Applicant admitted prior art (page 37, lines 15+).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Murayama by employing these alternative materials as taught by Kudoh, Applicant admitted prior art, and other materials as well known in the art for substitution. This is because the substitution of art recognized equivalent solid electrolyte materials would have been within the level of one having ordinary skill in the art, wherein employing these alternative solid electrolytic materials in forming the solid electrolytic capacitors would improve high frequency characteristics and high reliability under high temperature and high humidity conditions.

Allowable Subject Matter

*** Claims 29-36 are allowed.

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*** The following is an examiner's statement of reasons for allowance: As of record, none of the references of record including Murayama (5,412,533), Kudoh et al (5,117,332), Nakamura et al (5,483,415) fairly anticipatively suggest a method for forming a semiconductor device comprising all process limitations as claimed, or in the combination of the references, to fairly make a prima facie obvious case of the claimed invention as recited in claim 29, wherein neither references teach or suggest linearly coating said masking material solution around the entire circumference and heating the solution to form the first masking layer; subjecting an area where a solid electrolyte is formed later to electrochemical forming; further linearly coating the masking solution around the entire circumference at a distance from the first masking layer on the electrochemically formed metal material, and heating the solution to form the second masking layer; forming a solid electrolyte in the area exclusive of the spacer between the masking layers out of the area subjected to the electrochemical forming; and cutting the metal materials in the space between the first and second masking layers.

Response to Amendment

3. Applicant's Amendment and remarks filed August 20, 2003 have been fully considered but they are not persuasive, and to be in moot of new ground of rejection.

** Applicant's remark (remark page 11) about Murayama that "...In contrast, the present invention is advantageous in reducing the leakage current..."

In response, this is noted and found unconvincing. First, claimed subject matter, not the specification, is the measure of invention. Limitations in the specification cannot be read into the claims for the purpose of avoiding the prior art. In *Re Self*, 213 USPQ 1,5 (CCPA 1982); In *Re Priest*, 199 USPQ 11,15 (CCPA 1978). Second, similarly, similar to the claimed invention, the method of Murayama is also directed to a method for producing a solid electrolyte capacitor, as claimed by Applicant.

Apparently, applicant has different reason for, or advantage resulting from doing what the prior art relied upon has suggested, it is noted that it is well settled that this is not demonstrative of non-obviousness, In *Re Kronig* 190 USPQ 425, 428 (CCPA 1976); In *Re Lintner* 173 USPQ 560 (CCPA 1972). The prior art motivation or advantage may be different than that of applicant

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while still supporting a conclusion of obviousness. In Re Wiseman 201 USPQ 658 (CCPA 1979); Ex Parte Obiaya 227 USPQ 58 (Bd. of App. 1985).

*** Applicant's remark (remark page 11) that "...Cichanowski discloses that a dielectric coating of a polymer formed on a substrate may be applied by roller coating", but further remark "...Cichanowski does not teach or suggest applying masking resin layers by roller coating, but teaches applying a dielectric coating by roller coating..."

In response, this is noted and found unconvincing. First, it is clear that Cichanowski teaches applying a polymer by roller coating. Second, the rejection is not overcome by pointing out that one reference does not contain a particular limitation when reliance for that teaching is on another reference. In Re Lyons 150 USPQ 741 (CCPA 1966). It is well settled that one can not show non-obviousness by attacking the references individually where, as here, the rejection is based on combinations of references. In Re Keller, 208 USPQ 871 (CCPA 1981); In Re Young, 159 USPQ 725 (CCPA 1968).

Herein, Murayama clearly teaches coating a masking resin material solution on the portion metal material body 1,5,11 to form a masking layer 12 (Figs 1 and 11), wherein it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the resin polymer masking insulating layer 12 of Murayama et al by employing conventional techniques including brushing (press contacting), roller coating (press contacting), and drawing down as taught by Cichanowski. This is because of the desirability and necessity to coat the masking polymer layer on portions of the substrate for mass-production, wherein these conventional techniques are alternative and proven for effectively coating of the polymer layer on the substrate.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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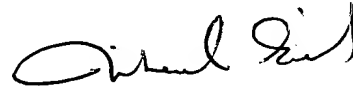
CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael M. Trinh whose telephone number is (703) 308-2554. The examiner can normally be reached on M-F from 8:30 Am to 4:30 Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (703) 308-4905. The central official fax phone number is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

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Michael Trinh
Primary Examiner